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$$4s=8\pi(1+\tfrac{1}{9}-\tfrac{1}{18}-\tfrac{5}{729}-\tfrac{875}{104976}-\tfrac{7}{3888}-\tfrac{847}{472392}-\tfrac{53053}{119042784}-\ldots).$$

$4s=26.0104$ exact to two decimal places.

Also solved by *F, P. Matz*, and *J. F. W. Scheffer*.

PROBLEMS.

30. **Proposed by R. J. ADCOCK, Larchland, Illinois.**

When the sum, of the distances of a point of a plane surface, from all its other points, is a minimum, that point is the centre of gravity of the plane surface.

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QUERIES AND INFORMATION.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

"*The Mysterious Formula.*"

Referring to my article on "Logarithms of Negative Numbers" published in the April Number, Vol. I., Mr. C. D. Schmitt, on page 214, deduces the following singular result: $\pi=\dfrac{\log(-1)}{\sqrt{-1}}$.

Another very remarkable result can be deduced from this as follows:

Dividing by 2, we have $\dfrac{1}{2\sqrt{-1}}\log(-1)=\frac{1}{2}\pi$. This may be written $\log\sqrt{-1}^{-\sqrt{-1}}=\frac{1}{2}\pi$. $\therefore\ \sqrt{-1}^{-\sqrt{-1}}=e^{\frac{1}{2}\pi}=4.810477381.$ This is what Professor Benjamin Peirce in his linear Associative Algebra, p. 5 (edition published by D. Van Nostrand), calls "the mysterious formula."

Writing i for $\sqrt{-1}$, the formula is $\dfrac{1}{i^i}=\sqrt{e^\pi}$.

M. C. STEVENS.

Editor Finkel has notified me that he cannot spare the space for further discussion of the possibility of a root of the equation $4+\sqrt{(x-4)}-\sqrt{(x+4)}=0$. I will therefore again refer Mr. Draughon to Mr. Horner's article in the Philosophical Magazine, and also to Wentworth's Algebraic Analysis, page 278 to page 286.

H. C. WHITAKER.

The International Mathematical Congress.

Professor A. Vasiliev, President of the Physico-mathematical Society of Kasan, Russia, has sent me a document prepared by him for the minister of public instruction, with a request that I translate such part of it from the Russian as bears on the founding of an International Mathematical Congress, and make it known in America. This is in substance as follows:

After recapitulating the action of the French Association for the advancement of Science at Caen (August 14,1894)[already translated by me and published on pp. 21-22 of the Bulletin of the American Mathematical Society, October 1894], he gives the resolution offered by me that very same day, August 14, 1894, for their signatures to all of the members of the American Mathematical Society present at the Brooklyn meeting, and signed unanimously, which was as follows: "The undersigned, members of the American Mathematical Society present at its summer meeting, 1894, take this method of expressing their cordial approval of a series of international Congresses of mathematicians to take place from time to time, as suggested by A. Vasiliev and C. A. Laisant." The names of the signers may be found on page 290 of of Vol. I of the MONTHLY. I explained the plan as contemplating a *reunion prepartoire* at Kasan in 1896, and a *congres constituant* in Belgium or Switzerland in 1897, which perhaps might fix the first international congress at Paris in 1900.

Professor Vasiliev then goes on to state the decisive step taken by the *deutsche Mathematiker-Vereinigung* in a reunion at Vienna, September 1894. It was there unanimously resolved to take part in the organizing congress. The action was as follows: "Concerning future international congresses, the Mathematiker-Vereinigung decides in principle to participate, and charges its bureau to take in regard to this subject the measures that appear necessary. In particular, it leaves to each of its members entire freedom, considering alone as essential that the socieiy, on this important occasion, may be assured of having the place due it." Professor Vasiliev expects that the inauguration of the Lobachevsky monument at Kasan will take place in August or September 1896, and counts on having there a large number of eminent mathematicians, and will profit by the occasion to propose definitely the organisation of the international congress, and then official calls will be issued to meet for the purpose of final organization in 1897 at a city of Belgium or Switzerland.

GEORGE BRUCE HALSTED.

Austin, Texas.

1. What explanation do the mathematicians of the *present* day give of the old paradox following, where precisely opposite results are reached by apparently rigorous demonstrations?

If A and B are traveling in the same line, A at the rate of one mile an hour and B, starting one mile behind him and traveling at the rate of two miles per hour, it is evident that in one hour A will have traveled one mile and B, two miles and will have overtaken A, as we know by experience the truth is. But while B is traveling one mile, A will have traveled one half as far, and so on. That is, while B is traveling the space between him and A at the commencement of an hour, A will have traveled half as far, and hence B can never overtake him.

To the human mind, in the absence of all other knowledge, this demonstration is rigorously correct and conclusive. But we know that the conclusion is absolutely the opposite of the truth. The only explanation formerly given was, that while the human mind cannot comprehend it,the space between A and B finally becomes infinitely small, or, as compared with finite quantities, *nothing*.

J. H. Drummond.

II. It is often stated that it is impossible to trisect an angle with the rule and compass only. Has this impossibility been demonstrated and if so where can the demonstration be found?

W. E. Heal.

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EDITORIALS.

We shall consider it a great favor if all subscribers who have not yet paid their subscription for 1895, will kindly remit at once. We need the money to pay the Publishers.

At a recent meeting of the Philosophical Faculty of Yale University, Editor Finkel was assigned a graduate Scholarship for the academical year of 1895-6.

Rudyard Kipling will shortly return to India where he will prepare, for *The Cosmopolitan*, twelve articles to appear in the American and English editions of that magazine. India is one of the most interesting of countries, and Mr. Kipling is able to write of it as no one else. His work will be looked forward to with world-wide expectation.

Leonard E. Dickson, of the Chicago University, was reappointed to a Fellowship and will remain at the University another year.

There are a number of our subscribers in arrears for 1894. We shall consider it a kindness if those who are owing for 1894, will remit the amount of the subscription at once. A mathematical journal of the size and scope of the Monthly can not be published without funds, and were it not for a number of our mathematical friends aiding us financially the Monthly would be obliged to discontinue.

Subscribers who wished their subscription to cease with Vol. I. should have notified us on the receipt of Dec. No. Some after receiving three or four extra numbers, ask us to discontinue, without paying for the extra copies.